Achieving Stormwater Source Control in Portland Harbor (aka the Stormwater "*Message*")

DEQ is responsible for controlling upland sources of contamination to Portland Harbor on a schedule that ensures cleanup of the river can proceed with minimal risk of recontamination. This document describes how DEQ is addressing the stormwater pathway to achieve that objective and DEQ's timeline for completing this work.

DEQ's Two-Pronged Stormwater Strategy

There are two types of contaminant sources at upland sites. One type of source is contaminated media (e.g., soil, groundwater, pavement, etc.) that results from historical releases of hazardous substances. This is sometimes called *legacy contamination*.

The other type of source is a result of the day-to-day operations that take place at an industrial site. Many kinds of activities have the potential to result in minor releases of contaminants, such as zinc released by the wear and tear on tires and brake pads, phthalates off-gassing from paints and PVC piping, and petroleum products in drips of oils, greases and fuels used for vehicles and machinery.

Each type of source requires its own source control approach, and this is reflected in DEQ's two-pronged stormwater strategy. The two major elements of the strategy are (1) address legacy contamination using Cleanup authority, and (2) manage future stormwater discharges with Water Quality permits. These are described below.

Of note, however, is that there are many other programs and efforts underway that are not specific to Portland Harbor but are designed to prevent, minimize or otherwise control contaminant sources and help protect water quality. These include efforts such as toxics use reduction initiatives, the City's stormwater manual and green streets initiatives, hazardous waste regulations, etc. As a whole, these programs do the lion's share of the work of preventing stormwater contamination, and have been doing so for years and even decades in some instances. Stormwater discharging into Portland Harbor today is *much* cleaner than in years past.

That said, there are certain sites where a higher level of regulation and oversight is necessary to ensure stormwater quality does not fall below acceptable levels. This is where DEQ's Water Quality and Cleanup authorities come into play. These two programs are the basis of DEQ's stormwater source control strategy for Portland Harbor. Here is how they are being applied:

1. Address legacy contamination at upland sites

   DEQ's Cleanup Program identifies and addresses contaminated sites to minimize the potential for legacy contaminants (i.e., contaminants resulting from historic releases of hazardous substances) to migrate to the river via the stormwater pathway.

   DEQ's procedures for identifying and controlling sources of stormwater contaminants are described in its *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (2009, http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm). This approach involves consideration of several lines of evidence to determine when source control is needed and when it has been achieved.

DEQ will issue a Stormwater Source Control Decision (SCD) when it determines that legacy contamination has been controlled as necessary to minimize potential for contaminant migration to the river via stormwater discharge. Note that a Stormwater SCD is not a final determination that stormwater controls will be protective of in-river cleanup goals. That determination cannot be made until certain other evaluations are completed, as described below.

2. Manage future stormwater discharges with permits

   Stormwater permits are the appropriate tool for managing ongoing discharges from industrial sites. Currently, most sites required to have an industrial stormwater permit are managed under a "general permit" that establishes a common framework for managing stormwater and monitoring discharges. If this approach isn't sufficient to protect water quality, the general permit can be revised and/or problematic sites can be issued site-specific permits (an "individual" permit).

   For Portland Harbor, DEQ must also demonstrate that its stormwater permits will prevent stormwater discharges from recontaminating harbor sediments. The timeline for completing this evaluation – and adopting a revised permit if needed – is dependent on information coming out of two separate efforts.

   - The evaluation relies in part on analyses being conducted as part of the Portland Harbor RI/FS (e.g., loading evaluation, modeling results, cleanup goals). Much of this information should be available, at least in draft form, by spring 2011.

   - DEQ's Water Quality Program is in the process of revising the existing industrial stormwater general permit (1200Z) and expects to propose a revised permit in summer 2011. Once this permit is drafted, DEQ can begin to evaluate its effectiveness for Portland Harbor.

   If it is determined that the revised permit may not be adequate to achieve Portland Harbor objectives, DEQ will consider issuing a permit that is customized for Portland Harbor area sites. The objective would be to have the permit in place prior to EPA's issuance of the ROD. DEQ will also consider whether changes to the City's and Port of Portland's municipal stormwater permit (MS4 permit) will be needed to meet cleanup objectives.

After the Portland Harbor Record of Decision (ROD) is issued and Remedial Design begins, stormwater discharges within or adjacent to Sediment Management Areas will likely undergo additional scrutiny. If existing controls are found to be inadequate to prevent recontamination, site-specific stormwater treatment technologies and/or customized stormwater permits may be required at sites of concern.

Timeline for Accomplishing Stormwater Source Control Objectives

Figure 1 shows an approximate timeline for addressing legacy contamination affecting stormwater discharges at Portland Harbor sites, as well as the timeline for completing the stormwater permit evaluation and, if needed, issuance of a revised permit to address Portland Harbor cleanup goals.

Figure 2 illustrates the status of the Cleanup Program's stormwater evaluations at individual sites. [*Figure 2 will be an updated version of my color-coded map of the status of SW SC at each site.]* With the possible exception of a small number of complex sites, DEQ expects to have stormwater source control completed by the time that EPA issues the Portland Harbor ROD.

Adaptive Management Approach

Effective stormwater management is fraught with challenges:

- Stormwater quality is inherently variable; this translates into a generous amount of uncertainty when estimating the quantity of contaminants in stormwater as well as their potential impacts in the river.
- Land uses change, and stormwater quality and quantity will change as a result.
- Stormwater source control can be achieved/maintained through a mix of distinct but complementary regulatory and non-regulatory efforts, but there is no "one size fits all" approach. The most economical and effective approach can vary greatly from one site to another.

For all these reasons, stormwater management programs should be periodically evaluated using stormwater and other environmental data (e.g., surface water quality, sediment quality near outfalls) to determine if environmental objectives are being achieved, and be revised as necessary. This is known as an *adaptive management* approach. The data needs for this evaluation should be taken into consideration when post-remedy monitoring plans are being developed for the Harbor.

Figure 1: Timeline for Achieving Stormwater Source Control in Portland Harbor

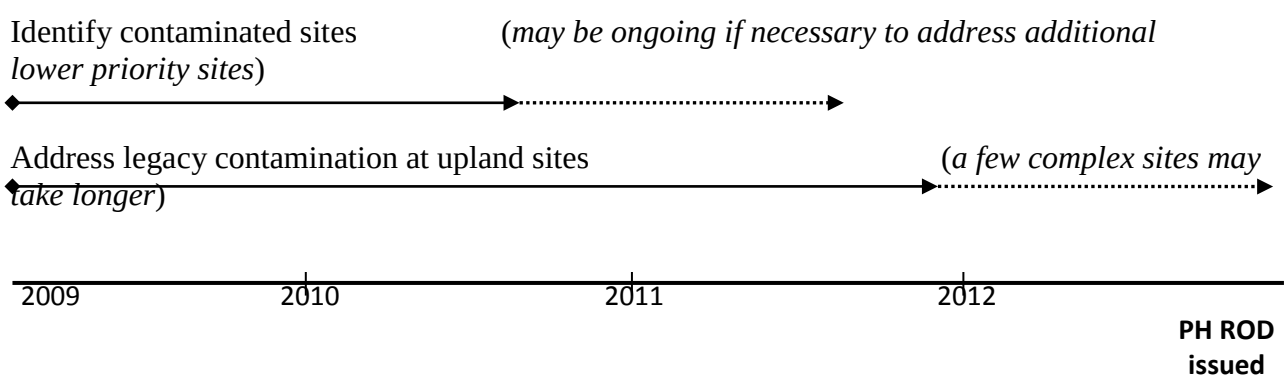

Figure 2: Status of Stormwater Source Control Evaluations (under development)